Patent claims

Claim 1

Light guiding blinds (40 through 43, 51, 52) having at least partly prism-molded toothed upper sides (54, 104), said prismatic molding being provided at least in the first portion of the blinds disposed close to the irradiation area and serving for deflecting daylight, said prism-molded teeth of one prism side showing towards sun incidence and with one reverse prism side showing towards the interior space, and two blind edges each on the sun incidence side forming an incidence level and two blind edges each on the interior space side forming a deflection level, and a blind edge of a lower blind each in the incidence level and a blind edge of an upper blind each in the deflection level forming an angle (α_S) relative to the level of the inner blind edges, and sun irradiation impinging from outside being back-reflected at an angle (α_R) relative to the level of the outer blind edges in the direction of the outer space, the front side being the sun incidence side, said levels of said blind edges being in parallel relative to each other, characterized in that

a) the **individual prismatic** tooth sides showing towards sun incidence have angles of inclination **(β) relative to the horizontal** said angle of inclination ($\beta 1$) being essentially smaller in the area of the irradiation level and said angle of inclination (β_2) being larger at larger distance from the irradiation level, and

b) the angles of inclination **(β) of the individual teeth** and/or the tooth sides **of the teeth (106, 107)** showing towards sun incidence either increase continuously (47) or discontinuously or irregularly following a concave curve path increasingly ascending starting from the irradiation area towards the interior space, and

c) at the upper side of light guiding blinds (40, 51) **back**-reflected radiation (82) is concentrated and a concentration zone (46, 53) is formed near the irradiation level, **said concentration zone (46, 53), either by rotating**

the blinds or by using the changed angle of incidence of the sun, is disposed either in front of blinds (41) in the irradiation level **(46)** and/or on the underside of upper blind (52) behind the irradiation level, and

d) on the upper side of **the** light guiding blind (51, 40) **back**-reflected light radiation may be **back**-reflected at the individual teeth at an angle ($\alpha_R < \alpha_S$), **the back reflection angle (α_R) into the outer space being smaller than the angle (α_S) between two blind edges each of a lower blind in the irradiation level and an upper blind in the deflection level** .

Claim 2

Light guiding blinds according to claim 1, characterized in that said light guiding blinds are readjusted in a position through which at the upper side of said blinds retro-reflected light radiation (56) impinges at an angle $\gamma < 90°$ on the underside of blinds (55).

Claim 3

Light guiding blinds according to claim 1, characterized in that said light guiding blinds are manufactured by a rolling process as a flat blind having uniform tooth formation and by subsequent concave/convex molding of the blind the individual teeth are brought into their ascending angular position β.

Claim 4

Light guiding blinds according to claim 1, characterized in that said light guiding blinds include at least one portion oriented towards the interior space which, at least vis-à-vis a first portion (104), includes flatter tooth angles β.

Claim 5

Light guiding blinds according to claim 1, characterized in that said light guiding blinds include at least one portion (105, 108) oriented towards the interior space which is arch-shaped or plane

Claim 6

Light guiding blinds according to claim 1, characterized in that said light guiding blinds (100 through 103) are S-shaped.

Claim 7

Light guiding blinds according to claim 1, characterized in that said light guiding blinds consist of at least one first portion of said blinds and at least one second portion of said blinds which serve as light guiding element for light guidance towards the interior space wherein said first portion consists of at least two teeth (106, 107), the first tooth (106) including on the side facing the sun light a flat angle of inclination β, and at least one further tooth (107) including a steeper angle of inclination β, and that at least the sun-irradiated sides of the teeth are concavely arched.

Claim 8

Light guiding blinds according to claim 1, characterized in that said first portions of said blinds consist of at least one single tooth and at least the sun-irradiated side of said tooth are concavely arched, and the blinds include at least one second light guiding element for light guidance towards the interior space.

Claim 9

Light guiding blinds according to claim 1, characterized in that said light guiding blind upper sides are holograms.

Claim 10

Light guiding blinds according to claim 1, characterized in that on the underside in the area of portion (54) of blinds (52) disposed towards the irradiation area, energy converters for short-wave radiation into long-wave radiation and/or into current are provided.

Claim 11

Process of production of light guiding blinds according to claim 1 in a rotary process by feeding carrier material through a pair of rollers having structured surface, characterized in that microstructuring **of said carrier material** is obtained by means of a sol-gel coating into which either a prismatic-microstructured surface is embossed by a rotary embossing roller or a prismatic-microstructured surface is imprinted by a rotary printing roller, and which before, during or immediately after embossing or imprinting receives at least an initial curing by being fed electromagnetic radiation or by electron bombardment .

Claim 12

Process of production according to claim 10, characterized in that said sol-gel coating is a nanomer.

Claim 13

Process of production according to claim 10, characterized in that said sol-gel coating constitutes a synthesis of a viscous sol having a high solid content on an SiO_2 base, curing after thermal treatment to constitute a vitreous layer.

Claim 14

Process of production according to claim 10, characterized in that the substrate of said sol-gel coating constitutes a synthesis of inorganic-organic nano composites.

Claim 15

Process of production according to claim 10, characterized in that said substrate of said sol-gel coating constitutes a polymerizing nano composite into which nano scale inorganic particles are incorporated.

Claim 16

Process of production according to claim 10, characterized in that into said substrate of said sol-gel coating precious metal colloids are incorporated.

Claim 17

Process of production according to claim 10, characterized in that said substrate of said sol-gel coatings is formed of polymerizable silanes and cures through photo polymerization under the irradiation of ultraviolet light

Claim 18

Process of production according to claim 10, characterized in that said substrate of said sol-gel coatings is produced by ceramic nano particles having a high metal oxide content (SiO_2, TiO_2).

Claim 19

Process of production according to claim 10, characterized in that said coatings consist of hydrolyzed methacryl-oxypropyl-trimetoxylane and said micro structuring is imprinted by an embossing roller.

Claim 20

Process of production according to claim 10, characterized in that said substrate of said sol-gel coatings consists of organically modified alkoxides and nano scale SiO_2 particles into which prismatic structures < 30 nm are imprinted.

Claim 21

Process of production according to claim 10, characterized in that said substrate of said sol-gel coatings is a metal colloid containing coating.

Claim 22

Process of production according to claim 10, characterized in that said sol-gel coating applied onto said work piece is sprayed, in a second working step, with redistinguishable ITI nano particles and this sprayed-on layer cures under ultraviolet light as a protective layer.

Claim 23

Process of production according to claim 10, characterized in that the prism-molded surfaces are covered with transparent conductive layers in that said layers of In_2O_2, SnO_2 and Sb are sprayed with high temperatures onto a hot work piece surface having temperature of more than 300°C.

Claim 24

Process of production according to claims 10 and 21, characterized in that said prism-molded molding or printing rollers are structured having a low energy surface with self-structuring nano particles so that with a view to repulsion effects a self-purifying surface results on the work piece.

Claim 25

Process of production according to claim 10, characterized in that said prism-molded molding or printing rollers are coated with a lubricant lacquer based on inorganic/organic nano composites.